

IN THE CLAIMS:

1. (Currently Amended) A wireless access method in which there are installed a plurality of access point stations deploying a wireless service area and forming a communication link with a mobile radio terminal which has entered the service area, and a communication link is formed between the plurality of access point stations to perform communication, the method comprising:

performing point-to-multipoint type communication with the mobile radio terminal by providing a self-heterodyne RF transceiver in each of the plurality of access point stations;

performing point-to-point type communication with other access point stations by providing one or more another self-heterodyne RF transceivers in each of the plurality of access point stations, said plurality of access point stations comprising a control access point station, a first repeater access point station and a second repeater access point station, signal processing at each access point being performed in an IF frequency band obtained by performing down-converting from an RF frequency band, said control access point station performing signal modulation/demodulation or access control, said control access point station broadcasting and delivering a first signal in a first RF frequency band to each mobile radio terminal located within a coverage area of said control access point and simultaneously relaying/transmitting a second signal in a second RF frequency band to said first repeater access point station, said second repeater access point station converting and dividing a reception signal in a RF frequency band into two signals in an IF frequency band and converting said two signals into a third signal in a third RF frequency band and a fourth signal

in a fourth RF frequency band when said second repeater access point station receives said reception signal from one of said first repeater access point station and said control access point station, said second repeater access point station generating said third signal in said third RF frequency band and said signal in said fourth RF frequency band based on a self-heterodyne procedure from the divided signals in the IF frequency band ~~said first, second, third and fourth RF frequency bands being different from each other~~, said second repeater access point station broadcasting and delivering said third signal to each mobile radio terminal located within a coverage area of said second repeater access point and simultaneously relaying/transmitting said fourth signal to another one of said access point stations based on a non-reproduction scheme, said second repeater access point station receiving a mobile radio terminal signal from one of said mobile radio terminals located within said coverage area of said second repeater access point station, said second repeater access point station relaying/transmitting said mobile radio terminal signal to one of said access point stations based on a non-reproduction scheme.

2. (Canceled)

3. (Previously Presented) The wireless access method according to claim 1, wherein:  
to a radio signal transmitted from the control access point station to another access point station, there is attached destination information for allowing a destination access point station to perform identification; and

each repeater access point station identifies destination information of a received signal,

relaying/transmitting the signal to another access point station based on a non-reproduction scheme when the signal is not destined for the own station, broadcasting the signal to the coverage area of the own station to deliver the signal to all mobile radio terminals when the signal is destined for the own station.

4. (Canceled)

5. (Previously Presented) The wireless access method according to claim 1, wherein the self-heterodyne RF transceiver included in the access point station is based on a millimeter-wave self-heterodyne scheme.

6. (Currently Amended) A wireless access system in which there are installed a plurality of access point stations deploying a wireless service area and forming a communication link with a mobile radio terminal which has entered the service area, and a communication link is formed between the plurality of access point stations, the system comprising:

a self-heterodyne RF transceiver to form point-to-multipoint type communication link with the mobile radio terminal, said RF transceiver being located in each of said plurality of access point stations; and

one or more another self-heterodyne RF transceivers to form a point-to-point type communication link with another access point station, said plurality of access point stations

comprising a control access station point, a first repeater access point station and a second repeater access point station, wherein signal processing at each access point station is performed in an IF frequency band obtained by performing down-converting from an RF frequency band, said control access station point transmitting and delivering a first signal in a first RF frequency band to each mobile radio terminal located within a coverage area of said control access station point and simultaneously transmitting a second signal in a second RF frequency band to said first repeater access point station, said second repeater access point station converting and dividing a reception signal in a RF frequency band into two signals in an IF frequency band and converting said two signals into a third signal in a third RF frequency band and a fourth signal in a fourth RF frequency band when said second repeater access point station receives said reception signal from one of said first repeater access point station and said control access point station, ~~each of said RF frequency bands being different from another one of said RF frequency bands~~ said second repeater access point station generating said third signal in said third RF frequency and said fourth signal in said fourth RF frequency band based on a self-heterodyne procedure from said divided signals in said IF frequency band, said second repeater access point station broadcasting and delivering said third signal to each mobile radio terminal located within a coverage area of said first repeater access point station and simultaneously transmitting said fourth signal to another one of said access point stations based on a non-reproduction scheme, said second repeater access point station receiving a mobile radio terminal signal from one of said mobile radio terminals located within said coverage area of said first repeater access point station, said second repeater access point station transmitting

said mobile radio terminal signal to another one of said access point stations.

7. (Original) The wireless access system according to claim 6, wherein the plurality of access point stations are constructed in cascade arrangement or two-dimensionally across a wide area, whereby a wireless service zone is deployed on a planar surface.

8. (Canceled)

9. (Previously Presented) The wireless access system according to claim 6, wherein:  
to a radio signal transmitted from the control access point station to another access point station, there is attached destination information for allowing a destination access point station to perform identification; and

5        each repeater access point station identifies destination information of a received signal, relaying/transmitting the signal to another access point station based on a non-reproduction scheme when the signal is not destined for the own station, broadcasting the signal to the coverage area of the own station to deliver the signal to all mobile radio terminals when the signal is destined for the own station.

10. (Canceled)

11. (Previously Presented) The wireless access system according to claim 6, wherein

the self-heterodyne RF transceiver included in the access point station is based on a millimeter-wave self-heterodyne scheme.

12. (Currently Amended) A wireless access method, comprising:

providing a plurality of access point stations, each access point station transmitting a wireless service to define a wireless service area;

providing a first self-heterodyne RF transceiver in each of said plurality of access point stations;

performing point-to-multipoint type communication with a mobile radio terminal located in one or more of said wireless service areas with said first self-heterodyne RF transceiver;

providing a second self-heterodyne RF transceiver in each of said plurality of access point stations;

performing point-to-point type communication with one of said access point stations and another of said access point stations via said second self-heterodyne RF ~~transceiver~~ transceiver, said plurality of access point stations comprising a control access point station, a first repeater access point station and a second repeater access point station, said control access point station performing signal modulation/demodulation or access control, wherein signal processing at each access point station is performed in an IF frequency band obtained by performing down-converting from an RF frequency band, said control access point station transmitting and delivering a first signal in a first RF frequency band to each mobile radio

terminal located within a coverage area of said control access point and simultaneously  
20 transmitting a second signal in a second RF frequency band to said first repeater access point  
station, said second repeater access point station receiving a reception signal in a RF frequency  
from one of said first repeater access point station and said control access point station, said  
second repeater access point station converting and dividing said reception signal into a first  
signal and a second signal in an IF frequency band when said second repeater access point  
25 station receives a signal from one of said first repeater access point station and said control  
access point station, said second repeater access point station converting said first signal into  
a third signal in a third RF frequency band and said second repeater access point station  
converting said second signal into a fourth signal in a fourth RF frequency band, ~~each RF~~  
30 frequency band being different from another said RF frequency band said second repeater  
access point station generating signals in said third and fourth RF frequency bands based on  
a self-heterodyne procedure from said divided signals in said IF frequency band, said second  
repeater access point station delivering said third signal to one or more mobile radio terminals  
located within said wireless service area of said second repeater access point and  
simultaneously delivering said fourth signal to another one of said access point stations, said  
35 second repeater access point station receiving a mobile radio terminal signal from one of said  
mobile radio terminals located within said wireless service area of said second repeater access  
point station, said second repeater access point station delivering said mobile radio terminal  
signal to another one access point stations.

13. (Previously Presented) A wireless access method according to claim 12, wherein:

to a radio signal transmitted from the control access point station to another access point station, there is attached destination information for allowing a destination access point station to perform identification; and

5        each repeater access point station identifies destination information of a received signal, relaying/transmitting the signal to another access point station based on a non-reproduction scheme when the signal is not destined for the own station, broadcasting the signal to the coverage area of the own station to deliver the signal to all mobile radio terminals when the signal is destined for the own station.

14. (Previously Presented) A wireless access method according to claim 12, wherein the self-heterodyne RF transceiver included in the access point station is based on a millimeter-wave self-heterodyne scheme.